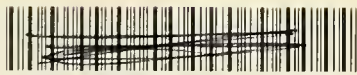


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Inspection of Commercial Fertilizers 1987

BY LESTER HANKIN

Bulletin 853

February 1988

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The Connecticut Agricultural Experiment Station,

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During 1987, 347 official samples of fertilizer were collected by inspectors of the Connecticut Department of Agriculture and examined for authenticity of guaranteed analysis that is stated on the label and compliance with State Regulations. Although all guaranteed analyses are examined, only the results for the major plant nutrients of nitrogen, phosphoric acid, and potash are presented. Other fertilizers tested for farmers and Station research are not included in this Bulletin.

Table 1 shows individual samples from 38 manufacturers. The numbers preceding the brand name are the guaranteed analyses. For example, 10-10-10, indicates the guaranteed percentage for nitrogen (N), phosphoric acid (P_2O_5), and potash (K_2O), in that order. The actual content is then shown, with deficiencies indicated by a dash (-) following the amount found. Table 2 summarizes for each manufacturer the number of guarantees examined for each plant nutrient, the percentage of samples not meeting their guarantee, and the average percentage of guarantee found. Table 3 shows the tonnage of the various grades of mixed fertilizer sold in Connecticut. Only grades prepared by at least three manufacturers are shown; other grades are placed in the miscellaneous category. The tonnage of fertilizer material and mixed fertilizer sold in Connecticut is shown in Table 4.

Two types of variability affect fertilizer analysis and must be considered in judging deficiencies. The first is variability among different batches of the same grade from a manufacturer. This variability can be noted in Table 1 by examining analyses of the same grade from the same manufacturer. The second is variability between duplicate analyses of the same sample. The mean difference between duplicate analyses for nitrogen, phosphoric acid, and potash is about two-tenths percent.

Fertilizer samples are deemed deficient in any nutrient if the analysis is below the guarantee by more than the values established by the Association of American Feed Control Officials. Overall, 325 guarantees for nitrogen were tested and 13.5% were deficient; 313 guarantees for phosphoric acid were tested and 20.4% were deficient; and 313 guarantees for potash were tested and 13.7% were deficient. In 1986 the deficiencies for nitrogen were 4.5%, for phosphoric acid 9.1%, and for potash 8.8%. Thus the percentage of deficiencies increased for all nutrients in 1987.

Analyses were performed by Helen Kocaba, Mamie Pyles, Mary Alice DeFrancesco, Mary Withrow, and Deborah Behnfield. Samples were collected by John Chapman, Richard Macsuga, Richard Olson, and Alton VanDyke under the direction of Kenneth Veit. Fertilizer laws are administered by the Commissioner of Agriculture.

Lester Hankin
Chief, Analytical Chemistry

TABLE 1--ANALYSIS OF INDIVIDUAL SAMPLES OF COMMERCIAL FERTILIZERS

| Manufacturer, guarantee, brand | | | | Nutrients found, % | | |
|--------------------------------|----|----|-----------------------------|--------------------|-------------------------------|------------------|
| | | | | N | P ₂ O ₅ | K ₂ O |
| A. H. Hoffman | | | | | | |
| 4 | 4 | 2 | Hoffman Super Manure | 4.6 | 4.1 | 2.7 |
| Agrico Chemical | | | | | | |
| 10 | 6 | 4 | Agrico | 10.6 | 5.7 | 7.5 |
| 27 | | | Agrico | 27.4 | | |
| 46 | | | Agrico Urea | 46.0 | | |
| Agway | | | | | | |
| | 10 | 40 | Blend Rite | | 11.8 | 42.0 |
| | 45 | | Blend Rite Triple Phosphate | | 45.1 | |
| 1 | 1 | 1 | Agway Composted Cow Manure | 0.7 | 0.7 | 1.0 |
| 1 | 1 | 1 | Agway Composted Cow Manure | 0.9 | 0.8 | 1.0 |
| 5 | 10 | 10 | Blend Rite | 5.3 | 11.8 | 9.7 |
| 5 | 10 | 10 | Agway | 5.0 | 9.4 | 9.4 |
| 5 | 10 | 5 | Agway | 6.4 | 8.5- | 8.4 |
| 9 | 23 | 23 | Agway Bulk | 9.1 | 23.7 | 28.7 |
| 10 | 10 | 10 | Blend Rite | 10.2 | 9.2- | 6.8- |
| 10 | 10 | 10 | Blend Rite | 12.4 | 11.2 | 10.1 |
| 10 | 20 | 10 | Nutri Bond Ammoniated Fert | 7.9- | 21.1 | 14.0 |
| 10 | 20 | 20 | Blend Rite | 10.6 | 24.2 | 21.0 |
| 10 | 6 | 4 | Agway | 10.1 | 6.1 | 5.3 |
| 10 | 9 | 36 | Agway | 10.3 | 11.4 | 36.7 |
| 13 | 10 | 32 | Agway | 14.2 | 10.4 | 33.3 |
| 13 | 15 | 29 | Agway Bulk | 10.5- | 10.9- | 36.0 |
| 14 | 11 | 30 | Agway Bulk | 18.4 | 13.9 | 30.3 |
| 15 | 12 | 26 | Agway Bulk | 13.8- | 11.4 | 32.9 |
| 15 | 15 | 15 | Blend Rite | 15.2 | 16.6 | 14.5 |
| 15 | 15 | 15 | Nutri-Bond Ammoniated | 15.1 | 17.0 | 17.6 |
| 15 | 15 | 15 | Agway | 15.3 | 15.9 | 17.6 |
| 15 | 8 | 12 | Agway Blend Rite | 15.7 | 9.2 | 11.0- |
| 18 | 18 | 18 | Agway Bulk | 18.3 | 15.2- | 24.7 |
| 18 | 18 | 18 | Agway Bulk | 21.7 | 8.6- | 27.0 |
| 18 | 18 | 18 | Agway Bulk | 18.7 | 15.4- | 20.9 |
| 18 | 18 | 18 | Agway Bulk | 18.9 | 19.4 | 21.7 |
| 20 | 11 | 22 | Agway | 17.5- | 4.2- | 33.3 |
| 20 | 14 | 21 | Agway Bulk | 21.2 | 5.8- | 25.7 |
| 21 | 13 | 20 | Agway Bulk | 19.2- | 10.9- | 28.5 |
| 21 | 5 | 7 | Agway | 22.5 | 5.7 | 7.7 |
| 21 | 5 | 7 | Greenlawn Fert w/Oftanol | 23.4 | 6.1 | 8.9 |
| 22 | 11 | 18 | Agway Bulk | 18.4- | 12.0 | 25.5 |
| 22 | 12 | 18 | Agway Bulk | 22.9 | 6.4- | 14.6- |
| 22 | 6 | 8 | Green Lawn | 22.2 | 6.5 | 11.0 |
| 22 | 6 | 8 | Agway | 20.9- | 6.4 | 8.3 |
| 23 | 14 | 17 | Agway | 23.4 | 16.6 | 20.9 |
| 23 | 15 | 15 | Agway | 21.0- | 9.9- | 24.7 |

TABLE 1--ANALYSIS OF INDIVIDUAL SAMPLES OF COMMERCIAL FERTILIZERS (Continued)

| Manufacturer, guarantee, brand | | | | Nutrients found, % | | |
|--------------------------------|------|------|-----------------------------|--------------------|-------------------------------|------------------|
| | | | | N | P ₂ O ₅ | K ₂ O |
| 24 | 9 | 18 | Agway Bulk | 26.5 | 7.7- | 33.0 |
| 24 | 9 | 18 | Agway Bulk | 27.7 | 4.5- | 20.1 |
| 26 | 13 | 12 | Agway Bulk | 29.1 | 10.7- | 14.8 |
| 27 | 12 | 12 | Agway | 23.6- | 15.4 | 20.4 |
| 30 | | 20 | Agway | 31.0 | | 19.3 |
| 31 | 6 | 11 | Agway | 32.4 | 4.4- | 12.8 |
| 32 | | | Agway Liquid N | 33.4 | | |
| 32 | 8 | 8 | Agway Bulk | 32.2 | 9.3 | 13.8 |
| 33 | 3 | 10 | Agway Bulk | 33.3 | 2.6 | 16.3 |
| 33 | 3 | 11 | Agway Bulk | 39.9 | 1.2- | 7.8- |
| 36 | | | Agway Bulk | 38.7 | | |
| 43 | 2 | | Agway | 45.4 | 2.0 | |
| 46 | | | Urea | 46.2 | | |
| Anderson Organic | | | | | | |
| 2 | 1 | 2 | Tilleez | 2.2 | 2.2 | 2.4 |
| Atlas Fish Fertilizer | | | | | | |
| 5 | 1 | 1 | Atlas Fish Emulsion | 5.5 | 1.7 | 1.9 |
| 5 | 2 | 2 | Atlas Fish Emulsion | 5.5 | 2.0 | 1.9 |
| Burpee | | | | | | |
| 15 | 20 | 12 | Burpee Fert/Tomatoes | 15.1 | 21.5 | 12.5 |
| 17 | 23 | 6 | Burpee Grow/Vegetables | 17.6 | 22.6 | 6.1 |
| 18 | 12 | 12 | Burpee Grow/Flowers | 18.1 | 11.7 | 13.4 |
| 18 | 4 | 7 | Burpee Grow Azal/Cam/Rhod | 19.3 | 4.4 | 7.6 |
| 20 | 3 | 8 | Burpee Grow/Shrbs/Trs/Evrg | 20.3 | 3.3 | 8.1 |
| Cadwell & Jones | | | | | | |
| | 20 | | C & J | | 20.2 | |
| | 46 | | C & J Triple Phosphate | | 46.0 | |
| 4.54 | 5.68 | 7.40 | C & J Custom HHK-Hadley | 4.8 | 5.8 | 6.4- |
| 4.59 | 5.62 | 6.20 | C & J Custom BVHK-Hadley | 5.0 | 5.3 | 5.0- |
| 4.59 | 5.62 | 6.20 | C & J Custom BVHK Clark | 4.8 | 5.0 | 5.7 |
| 4.59 | 6.94 | 5.22 | C & J Custom HPK-Clark | 4.6 | 4.4- | 2.9- |
| 4.59 | 6.94 | 5.22 | C & J Custom HPK E Windsor | 4.8 | 7.0 | 4.8 |
| 4.64 | 4.41 | 6.27 | C & J Custom LPVHK-Hadley | 5.2 | 4.0 | 5.9 |
| 4.65 | 5.69 | 5.29 | C & J Custom BHK-Hadley | 5.0 | 5.2 | 4.8 |
| 4.65 | 5.69 | 5.29 | C & J Custom BHK Clark | 5.1 | 5.3 | 5.3 |
| 4.65 | 5.69 | 5.29 | C & J Custom BHK Clark | 4.8 | 5.7 | 5.7 |
| 4.65 | 5.69 | 5.29 | C & J Custom BHK E Windsor | 4.8 | 6.0 | 5.5 |
| 4.72 | 7.11 | 4.18 | C & J Custom BHP-A Clark | 4.9 | 6.7 | 4.2 |
| 4.72 | 7.11 | 4.18 | C & J Custom BHPA E Windsor | 5.0 | 9.0 | 4.1 |
| 4.72 | 7.11 | 4.18 | C & J Custom BHPA E Windsor | 5.0 | 6.9 | 3.7 |
| 4.73 | 7.16 | 3.19 | C & J Custom HPLK Clark | 4.9 | 8.0 | 2.9 |
| 4.76 | 3.27 | 5.42 | C & J Custom LLPHK-Hadley | 5.1 | 3.3 | 4.7- |

TABLE 1--ANALYSIS OF INDIVIDUAL SAMPLES OF COMMERCIAL FERTILIZERS (Continued)

| Manufacturer, guarantee, brand | | | | Nutrients found, % | | |
|--------------------------------|------|------|-----------------------------|--------------------|-------------------------------|------------------|
| | | | | N | P ₂ O ₅ | K ₂ O |
| 4.81 | 5.85 | 4.26 | C & J Custom BA Clark | 5.0 | 5.6 | 4.0 |
| 4.81 | 5.85 | 4.26 | C & J Custom BA Clark | 6.7 | 7.7 | 4.4 |
| 4.81 | 5.85 | 4.26 | C & J Custom BA E Windsor | 5.0 | 6.0 | 3.8 |
| 4.81 | 5.85 | 4.29 | C & J Custom BA-Hadley | 4.8 | 4.9- | 3.9 |
| 4.84 | 4.52 | 4.28 | C & J Custom BLP-A-Hadley | 4.3 | 3.9 | 4.5 |
| 4.87 | 5.93 | 3.29 | C & J Custom BLK-A-Hadley | 5.2 | 5.7 | 3.1 |
| 4.87 | 5.93 | 3.29 | C & J Custom BLKA Clark | 5.1 | 6.0 | 4.5 |
| 4.87 | 5.93 | 3.29 | C & J Custom BLK-A | 6.7 | 5.8 | 3.1 |
| 4.88 | 2.38 | 4.32 | C & J Custom ULLP-Hadley | 4.9 | 2.2 | 4.7 |
| 4.94 | 3.37 | 4.37 | C & J Custom LLP-A-Hadley | 5.1 | 3.1 | 4.1 |
| 5 | 10 | 10 | C & J Specialty Fert | 5.1 | 8.0- | 6.7- |
| 5 | 10 | 10 | C & J | 7.5 | 15.6 | 12.5 |
| 5 | 10 | 5 | C & J Surge | 6.3 | 11.2 | 4.6 |
| 5.00 | 3.41 | 3.38 | C & J Custom LLPLK-A-Hadley | 5.6 | 3.0 | 3.0 |
| 5.4 | 3.8 | 3.7 | C & J Cust LLPLKLCA-Hadley | 4.3 | 3.4 | 3.7 |
| 7 | 7 | 7 | C & J Surge High Prot Pl Fd | 7.1 | 8.0 | 8.5 |
| 7 | 7 | 7 | C & J Surge High Prot Pl Fd | 10.4 | 5.4- | 8.2 |
| 10 | 10 | 10 | C & J Specialty Fert | 10.2 | 10.2 | 13.8 |
| 10 | 10 | 10 | C & J | 10.1 | 8.9- | 13.7 |
| 10 | 2 | 8 | C & J | 10.7 | 2.1 | 7.6 |
| 10 | 20 | 10 | C & J Spec Fert w/Tupersan | 10.5 | 19.9 | 11.7 |
| 10 | 20 | 20 | C & J | 10.2 | 21.0 | 17.6- |
| 10 | 6 | 4 | C & J | 10.5 | 6.3 | 6.7 |
| 10 | 6 | 4 | C & J 50% SCU | 12.9 | 7.7 | 5.5 |
| 10 | 6 | 4 | C & J Hi-Organic Fert | 11.0 | 5.9 | 3.4- |
| 10 | 6 | 4 | C & J Surge Turf Prod | 7.6- | 4.6- | 5.2 |
| 15 | 3 | 5 | C & J Turf Prod | 15.2 | 2.6 | 4.3- |
| 15 | 15 | 15 | C & J | 18.4 | 16.7 | 13.9- |
| 15 | 15 | 15 | C & J | 13.0- | 9.9- | 19.3 |
| 15 | 30 | 15 | C & J w/Tupersan | 13.8- | 23.2- | 22.6 |
| 20 | 10 | 10 | C & J | 21.7 | 11.8 | 9.0- |
| 20 | 10 | 10 | C & J Super Surge | 21.0 | 10.3 | 9.8 |
| 20 | 10 | 10 | C & J Super Surge | 20.7 | 7.3- | 12.7 |
| 20 | 10 | 10 | C & J Spec Sup Surge w/Ben | 20.0 | 5.3- | 12.1 |
| 21 | 10 | 21 | C & J Soluble-FF-MG | 21.0 | 10.6 | 23.4 |
| 23 | 6 | 9 | C & J | 23.6 | 6.1 | 10.9 |
| 23 | 6 | 9 | C & J Lawn, Garden Fert | 7.8- | 4.4- | 7.4- |
| 25 | 3 | 9 | C & J | 25.2 | 4.0 | 8.8 |
| 25 | 9 | 10 | C & J Specialty Fert | 25.7 | 10.2 | 20.7 |
| 25 | 9 | 18 | C & J | 25.8 | 9.1 | 20.7 |
| 28 | 7 | 14 | C & J | 28.6 | 7.7 | 14.5 |
| 35 | 9 | 9 | C & J Specialty Fert | 39.0 | 10.5 | 12.0 |
| 45 | | | C & J Urea | 46.1 | | |
| 45 | | | C & J Urea | 45.0 | | |

TABLE 1--ANALYSIS OF INDIVIDUAL SAMPLES OF COMMERCIAL FERTILIZERS (Continued)

| Manufacturer, guarantee, brand | | | | Nutrients found, % | | |
|--------------------------------|------|-----------|-----------------------------|--------------------|-------------------------------|------------------|
| | | | | N | P ₂ O ₅ | K ₂ O |
| Chem Lawn | | | | | | |
| | | Chem Lawn | | 2.0 | 1.2 | 0.5 |
| Chevron Chemical | | | | | | |
| | 20 | | Ortho Super Phosphate | | 20.7 | |
| 3 | 10 | 3 | Ortho Up-Start E-1 | 3.2 | 10.9 | 2.9 |
| 5 | 1 | 1 | Ortho Fish Emulsion | 5.1 | 1.4 | 1.6 |
| 5 | 15 | 5 | Ortho Up-Start Plnt Starter | 5.0 | 15.9 | 5.6 |
| 6 | 18 | 6 | Ortho Tomato & Vegetable | 6.2 | 18.4 | 6.0 |
| 8 | 10 | 8 | Ortho Vegetable Food | 8.1 | 11.7 | 8.6 |
| 8 | 12 | 4 | Ortho Rose Food | 8.1 | 14.1 | 3.7 |
| 10 | 10 | 10 | Ortho General Purp Plant Fd | 11.0 | 10.1 | 10.0 |
| 10 | 12 | 6 | Ortho Tomato Food | 10.5 | 12.8 | 6.3 |
| 10 | 7 | 7 | Ortho Azal Camell Rhod Fd | 10.2 | 7.5 | 6.7 |
| 11 | 8 | 7 | Ortho Flower Garden Food | 11.5 | 8.2 | 7.4 |
| 12 | | | Ortho Bone Meal | 12.5 | | |
| Clinton Nursery Products | | | | | | |
| 12 | 6 | 6 | New Era Plnt Fd Spks | 12.4 | 7.4 | 7.0 |
| 4 | 10 | 10 | New Era Flow Plnt Fd Liq | 4.9 | 11.3 | 12.6 |
| 6 | 12 | 6 | New Era Plnt Fd Spks | 6.7 | 14.7 | 7.5 |
| 8 | 8 | 8 | New Era Plnt Fd Liq | 9.0 | 8.3 | 9.2 |
| Crop Production Services | | | | | | |
| | 16 | | CPS Muriate of Potash | | | 57.0 |
| | 15 | 30 | CPS | | 15.4 | 29.7 |
| | 20 | | CPS | | 19.9 | |
| | 20 | 20 | CPS | | 23.2 | 20.1 |
| 5 | 10 | 10 | CPS | 5.1 | 7.8- | 8.8- |
| 5 | 10 | 10 | CPS | 3.9- | 9.4 | 9.5 |
| 5 | 10 | 10 | CPS | 5.8 | 8.3- | 11.2 |
| 5 | 10 | 10 | CPS | 7.1 | 9.3 | 12.1 |
| 5.2 | 14.7 | | CPS w/Magnesium, S--Ca | 5.2 | | 15.8 |
| 10 | 6 | 4 | Village Green | 9.1- | 5.2- | 5.2 |
| 10 | 6 | 4 | CPS 50% Organic | 10.2 | 4.3- | 4.5 |
| 10 | 6 | 4 | CPS Village Green | 10.2 | 5.5 | 5.4 |
| 10 | 6 | 4 | CPS/Agrico Village Green | 10.2 | 6.1 | 6.3 |
| 10 | 8 | 10 | CPS | 7.7- | 10.1 | 14.5 |
| 10 | 10 | 10 | CPS | 8.8- | 10.1 | 11.5 |
| 10 | 10 | 10 | Agrico | 10.1 | 7.9- | 12.8 |
| 10 | 10 | 10 | CPS | 10.2 | 9.8 | 11.1 |
| 10 | 10 | 10 | CPS | 10.3 | 9.5 | 12.3 |
| 10 | 10 | 10 | CPS | 10.1 | 12.9 | 10.1 |
| 10 | 10 | 10 | CPS | 12.1 | 9.5 | 9.2- |
| 10 | 10 | 10 | CPS | 11.4 | 8.7- | 17.5 |
| 10 | 10 | 10 | CPS | 13.2 | 10.6 | 8.9- |

TABLE 1--ANALYSIS OF INDIVIDUAL SAMPLES OF COMMERCIAL FERTILIZERS (Continued)

| Manufacturer, guarantee, brand | | | | Nutrients found, % | | |
|--------------------------------|------|------|-----------------------------|--------------------|-------------------------------|------------------|
| | | | | N | P ₂ O ₅ | K ₂ O |
| 10 | 20 | 20 | CPS | 10.7 | 19.2 | 19.4 |
| 10 | 20 | 20 | CPS | 14.5 | 25.8 | 12.6- |
| 10 | 8 | 10 | CPS | 12.2 | 9.8 | 9.4 |
| 13 | 13 | 32 | CPS - Bulk | 17.4 | 9.4- | 27.4- |
| 14.7 | 14.7 | 29.5 | CPS | 12.3- | 9.8- | 33.3 |
| 14.7 | 14.7 | 29.5 | CPS - Bulk | 15.7 | 8.3- | 25.1- |
| 15 | 12 | 30 | CPS | 16.7 | 12.1 | 21.8- |
| 15 | 12 | 30 | CPS | 15.1 | 11.8 | 30.7 |
| 15 | 15 | 15 | CPS | 15.2 | 16.1 | 14.2 |
| 15 | 15 | 15 | CPS | 15.5 | 10.5- | 17.4 |
| 15 | 8 | 12 | CPS | 16.0 | 8.1 | 12.9 |
| 16 | 32 | | CPS w/Borate | 18.3 | 24.0- | |
| 17 | 5 | 34 | CPS - Bulk | 13.7- | 5.0 | 37.8 |
| 18 | 11 | 17 | CPS Village Green Spec Fert | 18.1 | 13.7 | 17.8 |
| 18 | 11 | 27 | CPS | 18.5 | 10.6 | 28.4 |
| 18 | 18 | 18 | CPS | 15.9- | 18.4 | 18.6 |
| 23 | 9 | 23 | CPS | 25.8 | 8.4 | 24.2 |
| 24 | 12 | 18 | CPS | 25.8 | 11.4 | 14.1- |
| 24 | 6 | 10 | Village Green Lawn Mix | 25.2 | 6.4 | 11.5 |
| 24 | 8 | 21 | CPS | 24.6 | 9.0 | 27.0 |
| 26 | 10 | 17 | CPS Bulk | 21.5- | 5.7- | 24.9 |
| 28 | 4 | 12 | CPS Village Green Spec Fert | 28.1 | 4.0 | 13.8 |
| 46 | | | Urea | 46.2 | | |
| 46 | | | Urea | 46.3 | | |
| 46 | | | Agrico | 46.4 | | |
| Dexol Industries | | | | | | |
| | 18 | | Dexol Compost Maker | | 16.9- | |
| Earth Gro | | | | | | |
| 1 | 1 | 1 | Earth-Gro Cow Manure | 0.7 | 0.7 | 0.7 |
| 1 | 1 | 1 | Earth-Gro Sheep Manure | 0.6 | 0.5 | 0.5 |
| 2 | 1 | 1 | Earth-Gro Dehyd Cow Manure | 2.0 | 1.6 | 1.4 |
| 2 | 1 | 1 | Earth-Gro Sheep Manure Dehy | 2.1 | 2.5 | 1.6 |
| 4 | 2 | 2 | Earth-Cro Manure Supreme | 2.0- | 2.1 | 1.3- |
| 4 | 4 | 2 | Earth-Gro Manure Supreme | 2.2- | 1.7- | 1.7 |
| Espoma | | | | | | |
| 4 | 3 | 2 | Espoma Plant Tone | 4.6 | 4.7 | 2.3 |
| 4 | 6 | 4 | Espoma Holly Tone | 4.2 | 8.4 | 5.3 |
| 4 | 6 | 6 | Espoma Garden Tone | 4.8 | 7.4 | 6.4 |
| 4 | 7 | 10 | Espoma Tomato Food | 5.5 | 12.0 | 7.6- |
| 4 | 12 | | Espoma Bone Meal | 5.2 | 20.8 | |
| 6 | 6 | 4 | Espoma Rose Tone | 6.1 | 7.1 | 6.6 |
| 9 | 5 | 4 | Espoma Tree Tone | 9.5 | 5.1 | 5.5 |

TABLE 1--ANALYSIS OF INDIVIDUAL SAMPLES OF COMMERCIAL FERTILIZERS (Continued)

| Manufacturer, guarantee, brand | | | | Nutrients found, % | | |
|--------------------------------|----|----|-----------------------------|--------------------|-------------------------------|------------------|
| | | | | N | P ₂ O ₅ | K ₂ O |
| Estech | | | | | | |
| | 20 | | Gro-Tone | | 23.6 | |
| | 20 | 20 | Harvest King | | 14.6- | 29.5 |
| 4 | 10 | 10 | Vigoro Azal/Cam/Rhod | 5.7 | 9.6 | 13.0 |
| 5 | 10 | 10 | Suburban | 5.2 | 9.6 | 9.8 |
| 5 | 10 | 10 | Suburban | 6.8 | 11.9 | 13.4 |
| 5 | 10 | 5 | Gro-Tone | 6.7 | 6.2- | 8.9 |
| 5 | 10 | 5 | Perk Up Plant Food | 3.8- | 6.8- | 4.8 |
| 5 | 10 | 5 | Gro-Tone 50% Organic Nit | 5.3 | 6.5- | 17.1 |
| 7 | 10 | 5 | Gro-Tone Rose Food | 6.6 | 9.8 | 7.1 |
| 10 | 10 | 10 | Suburban | 8.1- | 10.3 | 11.1 |
| 10 | 10 | 10 | Vigoro All Amer Lawn/Garden | 10.5 | 10.7 | 11.0 |
| 10 | 20 | 10 | Harvest King | 10.1 | 18.0- | 10.1 |
| 10 | 6 | 4 | Deerfield | 9.1- | 5.8 | 4.1 |
| 10 | 6 | 4 | Perk Up Lawn Food | 10.5 | 8.6 | 4.0 |
| 10 | 6 | 4 | Vigoro All Amer Lawn/Garden | 10.1 | 7.0 | 5.2 |
| 10 | 6 | 4 | Perk Up | 10.2 | 7.7 | 5.5 |
| 12 | 3 | 34 | Par-Ex with IBDU | 6.0- | 2.8 | 35.0 |
| 12 | 4 | 8 | Gro-Tone | 14.9 | 7.7 | 8.0 |
| 16 | | 24 | Par-Ex | 8.5- | | 25.5 |
| 17 | 20 | 6 | Par-Ex | 18.3 | 19.9 | 4.9- |
| 18 | 5 | 10 | Wood Ace | 19.1 | 7.3 | 7.9- |
| 20 | | 16 | Par-Ex with IBDU | 10.4- | | 25.9 |
| 20 | 3 | 10 | Terre Lawn Spur | 24.5 | 6.5 | 8.5- |
| 21 | 3 | 16 | Par-Ex With IBDU | 15.5 | 4.9 | 17.6 |
| 21 | 4 | 10 | Wood Ace | 25.7 | 6.0 | 8.5- |
| 23 | 3 | 6 | Deep Green | 20.6- | 4.3 | 7.1 |
| 23 | 5 | 5 | Gro-Tone Lawn Food | 23.3 | 4.8 | 5.8 |
| 24 | | 18 | Par-Ex | 24.3 | | 12.8- |
| 24 | | 20 | Par-Ex | 15.6- | | 27.1 |
| 25 | 3 | 5 | Terre Turf Spur II | 25.4 | 4.5 | 6.3 |
| 29 | | 10 | Estech | 30.5 | | 11.6 |
| 29 | 3 | 10 | Par-Ex With IBDU | 30.7 | 3.4 | 9.2- |
| 29 | 3 | 10 | Par-Ex with IBDU | 29.6 | 5.5 | 12.6 |
| 30 | 4 | 6 | Gro-Tone | 25.1- | 5.5 | 7.6 |
| 30 | 4 | 6 | Gro-Tone | 39.8 | 2.1- | 5.8 |
| 32 | 3 | 7 | Par-Ex | 32.8 | 3.6 | 7.5 |
| 32 | 3 | 8 | Par-Ex | 33.8 | 4.4 | 7.1- |
| Greensweep Products | | | | | | |
| 15 | | | Greensweep Weed & Feed | 15.3 | | |
| 20 | 3 | 3 | Greensweep Lawn Food | 11.0 | 3.2 | 3.7 |
| Hy-Trous | | | | | | |
| 5 | 10 | 5 | Hy-Trous Liquid Plant Food | 5.0 | 10.1 | 5.0 |

TABLE 1--ANALYSIS OF INDIVIDUAL SAMPLES OF COMMERCIAL FERTILIZERS (Continued)

| Manufacturer, guarantee, brand | | | | Nutrients found, % | | |
|--------------------------------|----|----|-----------------------------|--------------------|-------------------------------|------------------|
| | | | | N | P ₂ O ₅ | K ₂ O |
| Hyponex | | | | | | |
| 1 | 1 | 1 | Fertilife Comp Cow Manure | 0.7 | 0.7 | 0.6 |
| 1 | 1 | 1 | Vita Hume Comp Sheep Manure | 0.6 | 0.9 | 0.6 |
| 10 | 5 | 5 | Hyponex Bug Dart & Pant Fd | 12.8 | 6.7 | 6.0 |
| IB Chemical | | | | | | |
| 31 | | | IBDU Fine | 31.1 | | |
| International Spike | | | | | | |
| 8 | 24 | 8 | Jobe's Tomato & Garden Veg | 12.5 | 25.4 | 8.4 |
| 10 | 10 | 4 | Jobe's Plant Food Spikes | 10.1 | 10.6 | 5.5 |
| 10 | 5 | 5 | Jobe's for Young Trees | 13.2 | 5.3 | 4.5 |
| 12 | 16 | 12 | Jobe's for Prize Roses | 14.6 | 20.6 | 12.2 |
| 12 | 8 | 6 | Jobe's Spikes for Roses | 15.1 | 20.0 | 6.8 |
| 13 | 4 | 5 | Jobe's Plant Food Spikes | 13.6 | 7.1 | 6.6 |
| 13 | 5 | 7 | Jobe's Flowering Shrubs | 14.9 | 6.5 | 9.8 |
| 14 | 4 | 4 | Jobe's Evergreen Shrubs | 16.2 | 4.5 | 5.9 |
| 14 | 8 | 4 | Jobe's Flowering Shrubs | 16.2 | 8.8 | 5.6 |
| 15 | 3 | 3 | Jobe's Evergreen Trees | 16.5 | 4.3 | 4.4 |
| 15 | 5 | 5 | Jobe's Fert Spks/Young Tree | 15.6 | 5.6 | 5.7 |
| 16 | 2 | 6 | Jobe's Lush Ferns/Palms | 16.1 | 6.4 | 6.6 |
| Jiffy Products of America | | | | | | |
| 7 | 40 | 6 | Mag Amp Plant Food | 7.0 | 45.1 | 5.8 |
| Lebanon Chemical | | | | | | |
| 5 | 10 | 10 | Lebanon | 5.1 | 11.6 | 10.1 |
| 9 | 17 | 9 | Green Start | 10.3 | 17.6 | 12.4 |
| 10 | 10 | 10 | Lebanon | 10.2 | 10.4 | 11.6 |
| 10 | 6 | 4 | Greens Keeper | 10.3 | 6.4 | 4.3 |
| 12 | 24 | 12 | Turf Master Lawn Food | 13.1 | 25.6 | 11.3 |
| 19 | 4 | 4 | Crabicide Green | 20.6 | 3.9 | 4.9 |
| 19 | 4 | 6 | Country Club w/Crbgrss Prv | 20.0 | 5.1 | 5.9 |
| 20 | 8 | 8 | Greens Keeper | 21.8 | 8.5 | 8.2 |
| 30 | 4 | 4 | Green Power | 31.6 | 3.1- | 3.0- |
| McClellan and Son | | | | | | |
| 2 | 1 | 2 | Bovung Dehyd Cow Manure | 1.8 | 1.7 | 1.4- |
| Nassau Garden | | | | | | |
| 1 | 1 | 1 | Glorion Cow Manure | 0.5 | 0.5 | 0.4 |
| Nitrochem | | | | | | |
| 34 | | | Bull's Eye | 34.6 | | |

TABLE 1--ANALYSIS OF INDIVIDUAL SAMPLES OF COMMERCIAL FERTILIZERS (Continued)

| Manufacturer, guarantee, brand | | | | Nutrients found, % | | |
|--------------------------------|------|------|-----------------------------|--------------------|-------------------------------|------------------|
| | | | | N | P ₂ O ₅ | K ₂ O |
| O. M. Scott & Sons | | | | | | |
| 17 | 23 | 6 | Starter Fert | 17.4 | 25.9 | 6.7 |
| 27 | 3 | 3 | Turf Builder Plus 2 | 27.5 | 2.8 | 3.3 |
| 28 | 3 | 3 | Turf Euilder | 28.1 | 3.4 | 3.7 |
| Old Fox Chemical | | | | | | |
| 7.23 | 7.17 | 7.16 | Old Fox Side Dressing | 4.8- | 4.9- | 3.1- |
| 7.23 | 7.17 | 7.16 | Old Fox Side Dressing | 5.0- | 5.6- | 6.6 |
| 7.23 | 7.17 | 7.16 | Old Fox Side Dressing | 6.5- | 5.9- | 7.6 |
| 7.23 | 7.17 | 7.16 | Old Fox Side Dressing | 5.4- | 3.7- | 5.1- |
| 7.23 | 7.17 | 7.16 | Old Fox Side Dressing | 5.4- | 5.3- | 4.1- |
| | 15 | 30 | Old Fox Fert | | 14.7 | 30.4 |
| 4 | 16 | 20 | Old Fox Fert | 4.9 | 13.8- | 17.7- |
| 5 | 10 | 10 | Old Fox | 5.2 | 7.0- | 10.7 |
| 5 | 10 | 5 | Garden Food | 4.2- | 7.1- | 6.9 |
| 6 | 3 | 6 | Old Fox Prof Tobacco | 6.9 | 4.9 | 7.0 |
| 10 | 10 | 10 | Old Fox | 12.1 | 11.8 | 9.7 |
| 10 | 6 | 4 | Old Fox Turf Food | 12.4 | 4.7- | 4.3 |
| 10 | 8 | 10 | Old Fox Fert | 10.9 | 7.0- | 12.7 |
| 15 | 15 | 15 | Old Fox Fert with Borax | 17.5 | 14.4 | 14.1 |
| 15 | 8 | 12 | Old Fox Fert | 15.5 | 8.2 | 11.5 |
| 16 | | 30 | Old Fox Prof Turf/Tee/Erwy | 18.4 | | 33.5 |
| 18 | 3 | 6 | Liquid Green & Tee | 15.2- | 4.0 | 5.4- |
| 18 | 3 | 6 | Liquid Green & Tee | 15.5- | 4.1 | 5.4- |
| 18 | 46 | | Old Fox Fert | 19.1 | 46.5 | |
| 19 | 19 | 19 | Old Fox Fert | 19.5 | 19.2 | 21.7 |
| 22 | | 22 | Old Fox Prof Turf Food | 27.8 | | 27.9 |
| 22 | 4 | 14 | Old Fox Fert Turf Food | 22.0 | 3.8 | 22.7 |
| 24 | 12 | 18 | Old Fox | 24.5 | 10.6- | 18.8 |
| 30 | 3 | 10 | Old Fox Prof Turf Food | 30.2 | 3.4 | 23.3 |
| 30 | 3 | 10 | Old Fox Power Gran | 30.0 | 3.8 | 12.6 |
| 45 | | | Old Fox | 46.7 | | |
| Plant Research Laboratories | | | | | | |
| 1 | 2 | 1 | Oxygen Plus Plant Food | 1.1 | 2.1 | 1.1 |
| 1 | 3 | 2 | Oxygen Plus Afr Violet Food | 1.1 | 3.1 | 2.2 |
| 1 | 4 | 2 | Oxygen Plus House Plnt Food | 1.1 | 3.8 | 2.0 |
| 4 | 4 | 4 | Oxygen Plus Plant Food | 5.2 | 3.8 | 5.6 |
| Rapid-Cro | | | | | | |
| 18 | 21 | 21 | Rapid Gro Tomato/Veg Food | 18.3 | 21.0 | 22.7 |
| 23 | 19 | 17 | Rapid Gro Plant Food | 15.4- | 19.5 | 18.2 |
| 32 | 10 | 10 | Rapid Gro Evgrn Azal Fd | 31.7 | 11.8 | 10.7 |

TABLE 1--ANALYSIS OF INDIVIDUAL SAMPLES OF COMMERCIAL FERTILIZERS (Continued)

| Manufacturer, guarantee, brand | | | | Nutrients found, % | | |
|--------------------------------|----|----|-----------------------------|--------------------|-------------------------------|------------------|
| | | | | N | P ₂ O ₅ | K ₂ O |
| Rockland Chemical | | | | | | |
| 22 | 3 | 6 | Rockland Weed/Feed | 22.7 | 3.2 | 4.0- |
| 32 | 5 | 7 | Rockland | 32.7 | 5 | 7 |
| Ross Daniels | | | | | | |
| 5 | 25 | 15 | Ross Tree/Shrub Winterizer | 6.5 | 26.2 | 16.1 |
| 6 | 12 | 6 | Ross Plant Food Spikes | 6.8 | 11.6 | 9.2 |
| 8 | 16 | 16 | Ross Gro-Stks Fruit/Orn Trs | 9.3 | 18.8 | 17.2 |
| 9 | 46 | 15 | Ross Cart Fruit/Nuts/Tom | 9.4 | 49.2 | 17.4 |
| 14 | 5 | 5 | Ross Plant Fd Spks Fol Plnt | 16.0 | 8.2 | 5.5 |
| 15 | 25 | 10 | Ross Cart Roses/Flwrng Shrb | 15.1 | 28.0 | 10.5 |
| 16 | 10 | 9 | Ross Gro-Stakes for Trees | 16.6 | 10.6 | 9.1 |
| Schultz | | | | | | |
| 10 | 15 | 10 | Schultz-Inst Liq Plnt Fd | 10.0 | 14.4 | 9.9 |
| Sierra Chemical | | | | | | |
| 14 | 14 | 14 | Osmocote Tomato/Veg/Bedding | 14.3 | 13.5 | 13.7 |
| 17 | 6 | 10 | Osmocote Plant Food | 17.2 | 6.7 | 12.0 |
| 18 | 6 | 12 | Osmocote Outdr/Indr Plnt Fd | 18.2 | 8.0 | 12.7 |
| 20 | 10 | 5 | Osmocote Tree/Shrub Plntng | 20.8 | 10.5 | 5.8 |
| Stern's Nurseries | | | | | | |
| 15 | 30 | 15 | Stern's Miracle Gro Plnt Fd | 15.4 | 31.7 | 15.9 |
| 20 | 20 | 20 | Stern's Miracle Gro Patio | 24.0 | 20.2 | 21.3 |
| 30 | 10 | 10 | Sterns Miracid | 30.6 | 11.2 | 11.9 |
| Sudbury Lawn & Garden Products | | | | | | |
| | | 44 | Sudbury Potash | | | 54.3 |
| | 44 | | Sudbury Phosphorus | | | 46.4 |
| Valagra | | | | | | |
| | | 60 | Valagra Potash | | | 59.7 |
| 9 | 8 | 8 | Custom Blend | 7.8- | 7.6 | 7.9 |
| 9 | 8 | 8 | Custom Blend | 8.2- | 8.3 | 8.6 |
| 9 | 8 | 8 | Custom Blend | 8.3- | 4.2- | 6.9- |
| 9 | 8 | 8 | Custom Blend | 11.6 | 5.7- | 10.3 |
| 9 | 8 | 8 | Custom Blend | 8.4 | 5.7- | 6.9- |
| 9 | 8 | 8 | Custom Blend | 7.3- | 5.1- | 8.2 |
| 10 | 10 | 10 | Valagra | 11.9 | 9.0- | 9.4 |
| 10 | 6 | 4 | Valagra | 11.4 | 7.4 | 3.6 |
| 11 | 52 | | Valagra MAP | 11.6 | 52.4 | |
| 15 | 15 | 15 | Valagra | 17.4 | 18.6 | 14.3 |
| 15 | 8 | 12 | Valagra | 15.2 | 7.7 | 14.6 |
| 19 | 19 | 19 | Valagra | 19.0 | 19.3 | 19.3 |
| 45 | | | Valagra Urea | 45.6 | | |

TABLE 1--ANALYSIS OF INDIVIDUAL SAMPLES OF COMMERCIAL FERTILIZERS (Continued)

| Manufacturer, guarantee, brand | | | | Nutrients found, % | | |
|--------------------------------|----|----|---------------------------|--------------------|-------------------------------|------------------|
| | | | | N | P ₂ O ₅ | K ₂ O |
| Vigoro Industries | | | | | | |
| 10 | 6 | 4 | Turf Food | 9.6 | 4.9- | 4.5 |
| 14 | 12 | 14 | Woodace Nursery Fert | 14.7 | 11.7 | 16.9 |
| W. P. Grace & Co. | | | | | | |
| 5 | 10 | 5 | Peters Plnt Fd | 5.9 | 10.7 | 5.7 |
| 10 | 30 | 20 | Peters Prof Sol Plnt Fd | 11.0 | 30.4 | 21.5 |
| 12 | 36 | 14 | Peters Plnt Fd Afr Violet | 12.6 | 37.2 | 15.2 |
| 15 | 30 | 15 | Peters Prof Houseplant | 17.9 | 30.9 | 18.9 |
| 20 | 20 | 20 | Peters Prof | 23.0 | 20.0 | 20.8 |
| 30 | 10 | 10 | Peters Plnt Fd Orchid | 40.0 | 10.9 | 13.0 |

TABLE 2--SUMMARY FOR EACH MANUFACTURER OF NUMBER OF CLAIMS FOR INDIVIDUAL PLANT NUTRIENTS, PERCENTAGE OF CLAIMS NOT MEETING GUARANTEE, AND AVERAGE PERCENTAGE OF GUARANTEE FOR EACH NUTRIENT

| Company | Number Samples | Number of Claims | | | % Not Meeting Claim | | | Average % of Claim | | |
|-------------------|-------------------|------------------|-------------------------------|------------------|---------------------|-------------------------------|------------------|--------------------|-------------------------------|------------------|
| | | N | P ₂ O ₅ | K ₂ O | N | P ₂ O ₅ | K ₂ O | N | P ₂ O ₅ | K ₂ O |
| A.H. Hoffman | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 115 | 103 | 135 |
| Agrico Chemical | 3 | 3 | 1 | 1 | 0 | 0 | 0 | 103 | 95 | 188 |
| Agway | 50 | 48 | 46 | 45 | 19 | 35 | 9 | 101 | 94 | 121 |
| Anderson Organic | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 110 | 220 | 120 |
| Atlas Fish Fert. | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 110 | 135 | 143 |
| Burpee | 5 | 5 | 5 | 5 | 0 | 0 | 0 | 103 | 105 | 106 |
| Cadwell & Jones | 61 | 59 | 59 | 57 | 7 | 19 | 19 | 105 | 99 | 106 |
| Chem Lawn | 1 | 0 | 0 | 0 | - | - | - | - | - | - |
| Chevron Chemical | 12 | 11 | 11 | 10 | 0 | 0 | 0 | 104 | 110 | 108 |
| Clinton Nursery | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 113 | 116 | 121 |
| Crop Prod. Serv. | 47 | 43 | 42 | 42 | 8 | 11 | 8 | 105 | 96 | 115 |
| Dexol Industries | 1 | 0 | 1 | 0 | - | 100 | - | - | 94 | - |
| Earth Gro | 6 | 6 | 6 | 6 | 33 | 17 | 17 | 73 | 113 | 95 |
| | | | | | | | | | | |
| Espoma | 7 | 7 | 7 | 6 | 0 | 0 | 17 | 116 | 141 | 122 |
| Estech | 37 | 35 | 32 | 36 | 26 | 19 | 19 | 100 | 118 | 119 |
| Greensweep Prod. | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 113 | 107 | 123 |
| Hy-Trous | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 100 | 101 | 100 |
| Hyponex | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 86 | 98 | 80 |
| IB Chemical | 1 | 1 | 0 | 0 | 0 | - | - | 100 | - | - |
| International Sp. | 12 | 12 | 12 | 12 | 0 | 0 | 0 | 117 | 150 | 123 |
| Jiffy Products | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 100 | 113 | 97 |
| Lebanon Chemical | 9 | 9 | 9 | 9 | 0 | 11 | 11 | 107 | 105 | 106 |
| McClellan & Son | 1 | 1 | 1 | 1 | 0 | 0 | 100 | 90 | 170 | 70 |
| Nassau Garden | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 50 | 40 | 40 |
| Nitrochem | 1 | 1 | 0 | 0 | 0 | - | - | 102 | - | - |
| C.M. Scott & Sons | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 102 | 106 | 115 |
| | | | | | | | | | | |
| Old Fox Chemical | 26 | 25 | 23 | 24 | 32 | 48 | 25 | 100 | 97 | 108 |
| Plant Research | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 115 | 100 | 115 |
| Rapid-Gro | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 107 | 107 | 107 |
| Rockland Chemical | 2 | 2 | 2 | 2 | 0 | 0 | 50 | 103 | 103 | 83 |
| Ross Daniels | 7 | 7 | 7 | 7 | 0 | 0 | 0 | 112 | 115 | 114 |
| Schultz | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 100 | 96 | 99 |
| Sierra Chemical | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 102 | 112 | 110 |
| Stern's Nurseries | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 100 | 106 | 111 |
| Sudbury Products | 2 | 0 | 1 | 1 | - | 0 | 0 | - | 106 | 123 |
| Valagra | 14 | 13 | 12 | 12 | 31 | 42 | 17 | 102 | 91 | 101 |
| Vigoro Industries | 2 | 2 | 2 | 2 | 0 | 50 | 0 | 101 | 90 | 117 |
| W.R. Grace | 6 | 6 | 6 | 6 | 0 | 0 | 0 | 117 | 104 | 115 |
| | | | | | | | | | | |
| Totals | 347 | 325 | 313 | 313 | | | | | | |

TABLE 3--DISTRUBUTION OF MIXED FERTILIZERS SOLD IN CONNECTICUT
JULY 1, 1986-June 30,1987

| Grade | Tons | Grade | Tons | Grade | Tons |
|----------|------|----------|------|---------------|-------|
| 00-00-00 | 298 | 12-10-10 | 983 | 25-03-03 | 210 |
| 00-15-30 | 42 | 15-00-00 | 27 | 25-03-05 | 106 |
| 00-20-20 | 13 | 15-08-12 | 459 | 25-03-09 | 15 |
| 04-06-04 | 663 | 15-10-10 | 1282 | 27-03-03 | 905 |
| 05-01-01 | 1 | 15-15-15 | 782 | 32-04-04 | 41 |
| 05-10-05 | 834 | 16-04-08 | 101 | 32-05-07 | 21 |
| 05-10-10 | 816 | 16-08-08 | 63 | TOTAL | 16561 |
| 06-12-06 | 4 | 18-04-10 | 39 | MISCELLANEOUS | 25402 |
| 07-07-07 | 27 | 18-05-09 | 13 | | |
| 10-05-05 | 28 | 19-19-19 | 191 | GRAND TOTAL | 41963 |
| 10-06-04 | 1749 | 20-00-10 | 25 | | |
| 10-10-10 | 4587 | 20-03-03 | 86 | | |
| 10-15-15 | 152 | 20-05-10 | 327 | | |
| 10-20-10 | 409 | 20-10-10 | 558 | | |
| 10-20-15 | 90 | 20-10-20 | 14 | | |
| 10-20-20 | 366 | 20-20-20 | 68 | | |
| 12-04-08 | 106 | 22-00-22 | 52 | | |
| 12-06-06 | 1 | 24-04-12 | 87 | | |

TABLE 4--TONNAGE OF FERTILIZER MATERIAL AND MIXED FERTILIZERS SOLD IN CONNECTICUT JULY 1, 1986-JUNE 30, 1987

| Commodity | Tons | Commodity | Tons |
|------------------------|--------|------------------------------|---------|
| CHEMICAL NITROGEN | | NATURAL ORGANICS | |
| Ammonia | 5026.3 | Blood, dried | 3.6 |
| Ammonium nitrate | 198.5 | Cottonseed meal | 69.3 |
| Ammonium sulfate | 6 | Manure, cow, composted | 18 |
| Calcium nitrate | 82.4 | Manure, cattle, dried | 2659 |
| Nitrogen solutions | 228 | Manure, poultry, dried | 8.8 |
| Other nitrogen mater. | 100.2 | Sewage sludge, activated | 10 |
| Potassium nitrate | 1 | TOTAL | 2768.7 |
| Sodium nitrate | 5.3 | | |
| Urea | 3492.2 | MULTINUTRIENT | |
| Ureaform | 1 | Ammonium phosphate/nitrate | 823.7 |
| Urea-sulfur coated | 9 | Ammonium sulfate/nitrate | 1 |
| TOTAL | 9149.9 | Multinutrients | 60.3 |
| | | TOTAL | 885 |
| PHOSPHATES | | SECONDARY & MICRONUTRIENTS | |
| Bone meal, steamed | 49.2 | Aluminum sulfate | 2 |
| Superphosphate | 116.2 | Borax | 27.6 |
| Superphosphate, 18% | 21 | Ferrous sulfate | 3.1 |
| Superphosphate, 20% | 37 | Iron, chelated | 1.1 |
| Superphosphate, 45% | 334 | Land plaster | 59.5 |
| Superphosphate, 46% | 16 | Magnesium oxide | 1.5 |
| Other phosphates | 347 | Magnesium sulfate | 1.1 |
| TOTAL | 820.4 | Sulfur | 3 |
| POTASH | | Zinc sulfate | 0.4 |
| Muriate of potash | 2329.3 | Miscellaneous | 17 |
| Potassium nitrate | 49 | TOTAL | 116.3 |
| Potassium sulfate | 47.3 | | |
| Sulfate-potassium/mag. | 0.5 | | |
| | | TOTAL COMMODITIES | 16166.4 |
| | | TOTAL COMMERCIAL FERTILIZERS | 41963 |
| | | GRAND TOTAL | 58129.4 |



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